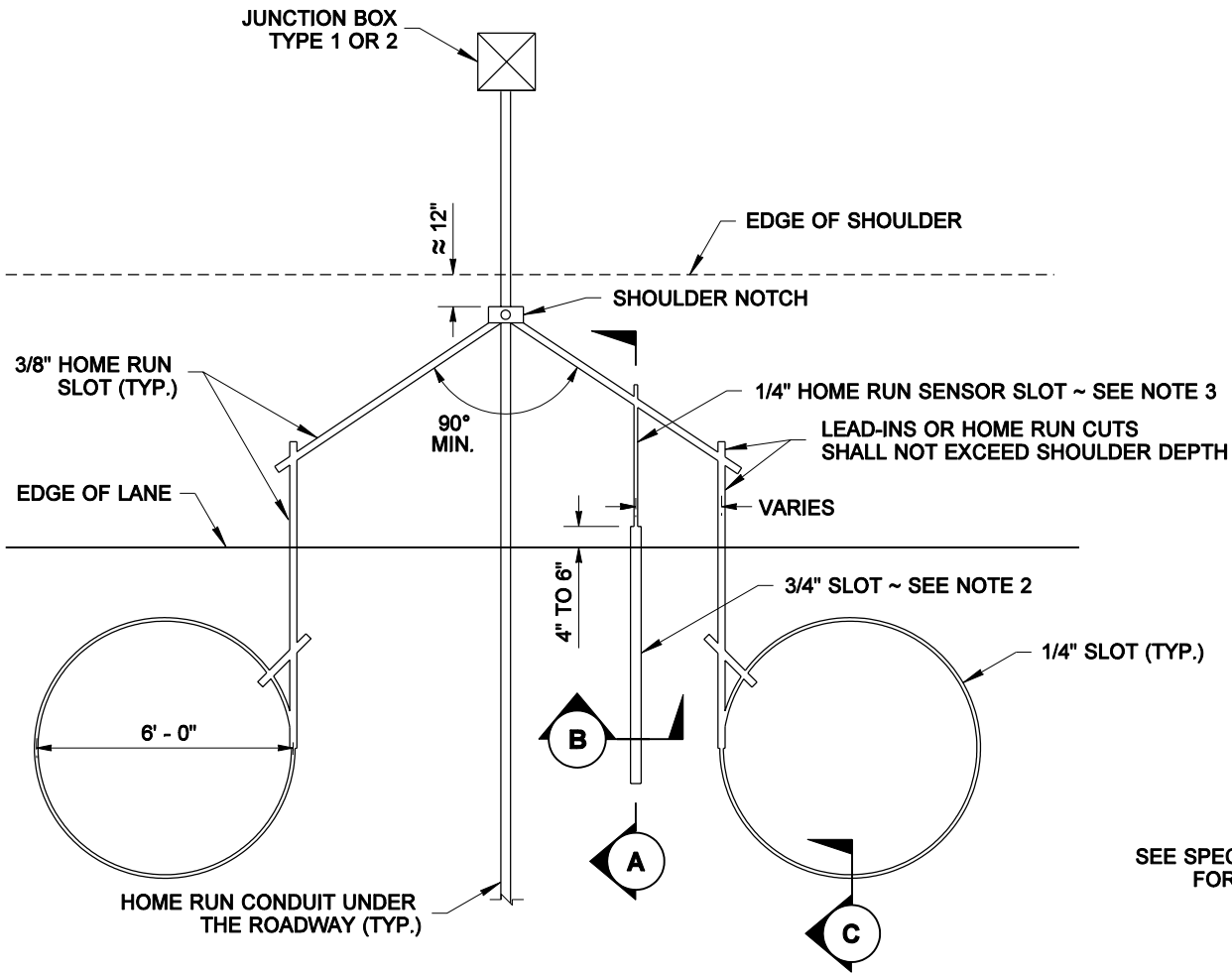
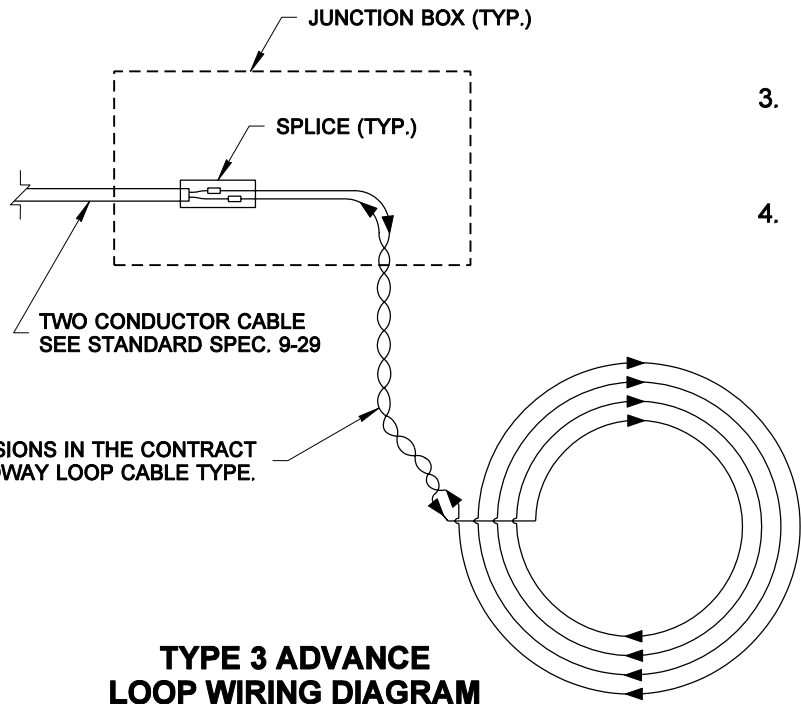


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SAWCUT LAYOUT

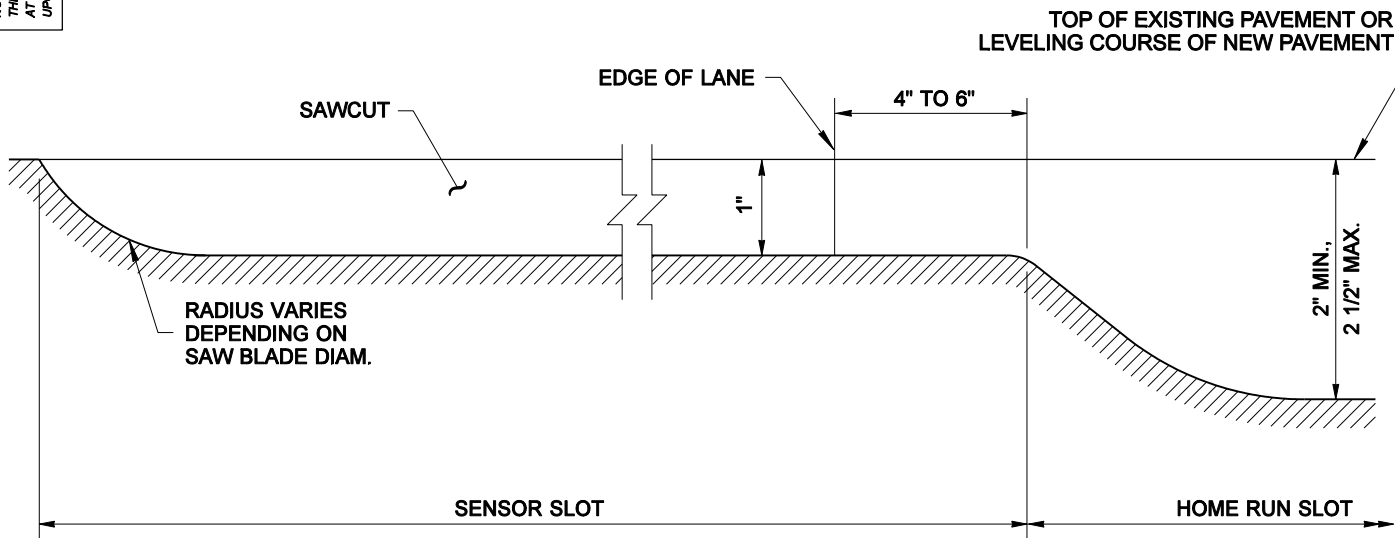


TYPE 3 ADVANCE  
LOOP WIRING DIAGRAM

THESE ARE GENERAL INSTALLATION INSTRUCTIONS

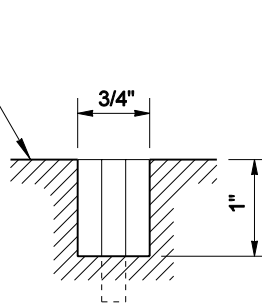
SEE SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS  
IN THE SPECIAL PROVISIONS OF THE CONTRACT

1. Using pavement crayons, paint, tape measure and cord, carefully mark the layout of the sensor installation. Ensure sensors are placed exactly perpendicular to the flow of traffic and that all lines are straight. Verify that the passive cable length is enough to reach the cabinet. DO NOT SPLICE CABLE. Leave a 4' minimum cable length inside of the cabinet.
2. Using a wet-cutting pavement saw with a 3/4" diamond blade, wet-cut the slot for the sensor. The slot must be 3/4" wide, +/- 1/16", by 1" minimum deep. Cut the slot 8" longer than the sensor length, (including the lead attachment).
3. Cut home run slots for Piezo sensors. Center the home run slot on the sensor slot. Cut the home run slots 2" minimum to 2 1/2" maximum deep and 1/4" minimum wide. Cut the slots wider if installing conduit.
4. Using a power washer with water, remove and collect all the slurry and loose material from the slots. Sweep the slots with a stiff wire bristled brush. Dry all of the slots with a large capacity air compressor (150 CFM minimum). All of the slots and the pavement 1' on either side must be completely dry.

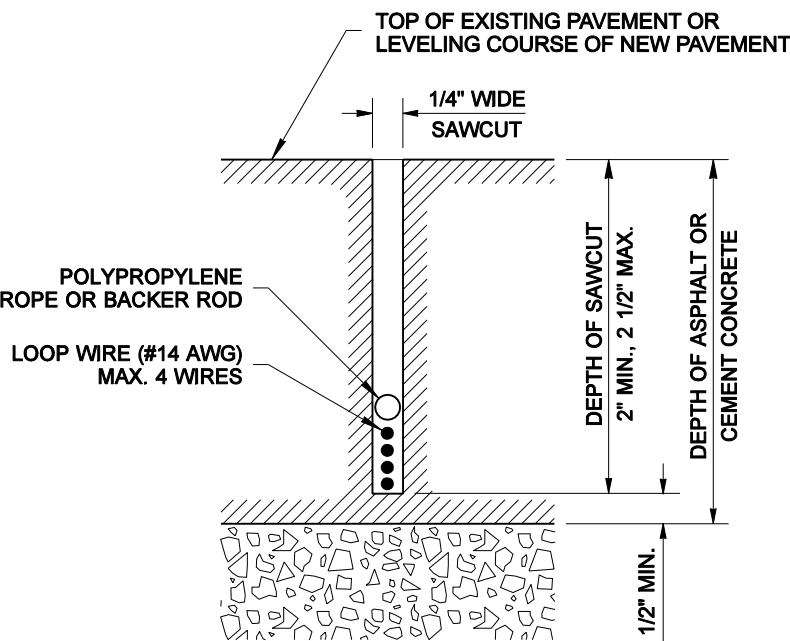


SECTION A

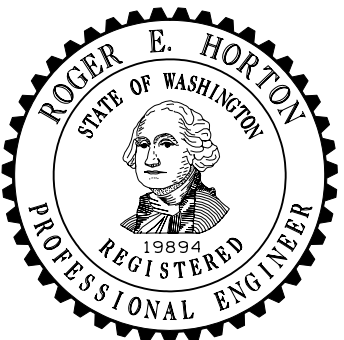
(BEFORE SENSOR INSTALLATION)



SECTION B



SECTION C



PERMANENT TRAFFIC  
RECORDER AND  
WEIGH-IN-MOTION DETAILS  
STANDARD PLAN J-20

SHEET 1 OF 3 SHEETS

APPROVED FOR PUBLICATION

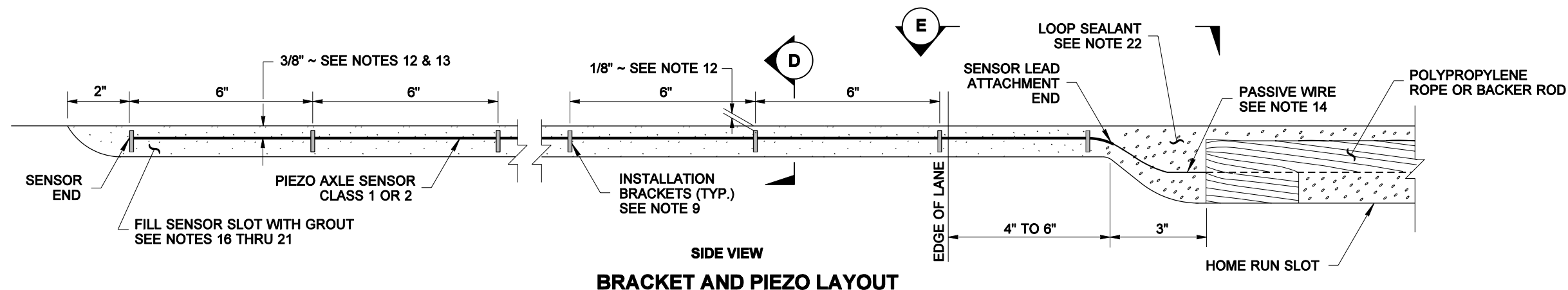
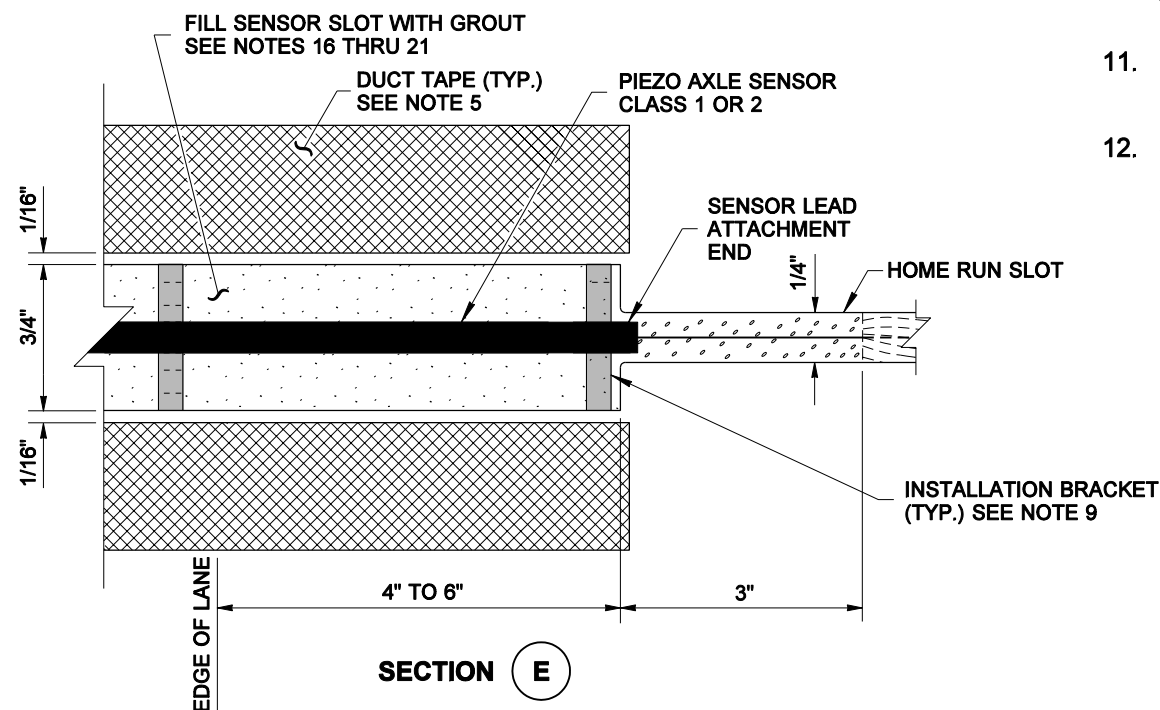
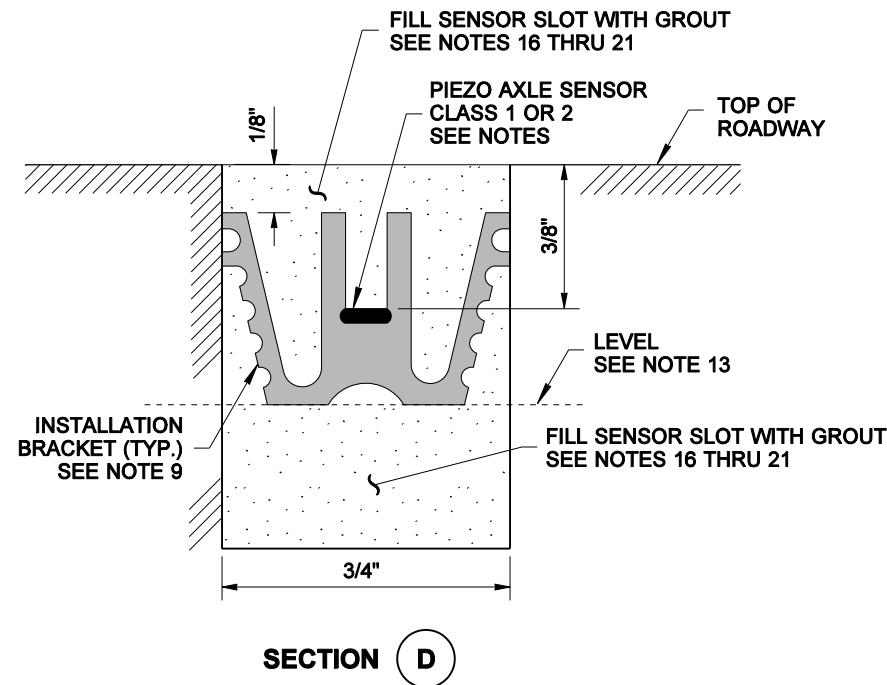
Harold J. Peterfeso 09-02-05

STATE DESIGN ENGINEER

DATE



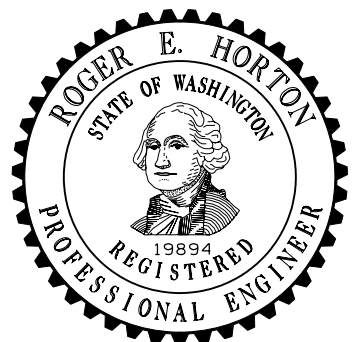
Washington State Department of Transportation



## THESE ARE GENERAL INSTALLATION INSTRUCTIONS

**SEE SPECIFIC MANUFACTURER'S INSTALLATION INSTRUCTIONS  
IN THE SPECIAL PROVISIONS OF THE CONTRACT**

5. Place 2" duct tape along length of both sides of the sensor slot. Tape 1/16" away from the slot.
6. Visually inspect sensor to ensure it is straight without any twists or curls. Check passive cable for bare wire. Check lead attachment for cracks or gaps. Check the data sheet to ensure the correct sensor is being installed: Class 1 Piezo Axle sensor for Weigh-in-Motion, and Class 2 Piezo Axle sensor for Permanent Traffic Recorder.
7. Place the sensor on the tape next to the slot. Handle the sensor with clean latex (or equivalent) gloves.
8. Clean the sensor with the grit of a steel wool or emery pad. Wipe it down with isopropyl alcohol and a clean, lint free cloth.
9. Place the installation brackets on the sensor every 6" for the length of the sensor. Use the 3/4" brackets.
10. Place the sensor in the slot in the road. The end of the sensor should be at least 2" from the end of the slot, and should not touch the bottom of the slot. The lead attachment end should also not touch the bottom or the sides of the slot.
11. If any of the 3/4" brackets do not fit snugly against the sides of the slot or are loose, replace them with a 1" bracket.
12. Starting at the lead attachment end, position the sensor so that it is parallel to the surface of the road, approximately 3/8" below the surface of the road. At this depth, the installation brackets are 1/8" below the surface of the road.
13. Place the loop sealant on the sensor. The sealant should be applied to the sensor at the lead attachment end, and at the other end of the sensor. The sealant should be applied to the sensor at the lead attachment end, and at the other end of the sensor. The sealant should be applied to the sensor at the lead attachment end, and at the other end of the sensor.
14. Place the loop sealant on the sensor. The sealant should be applied to the sensor at the lead attachment end, and at the other end of the sensor. The sealant should be applied to the sensor at the lead attachment end, and at the other end of the sensor.
15. Place all of the induction loops to the site specifications.
16. See the Special Provisions in the contract for the grout type used for Weigh-in-Motion Peizo Sensors and Permanent Traffic recorder Peizo sensors.
17. Using a low speed mixing drill (450 rpm) and a mixing paddle, premix the grout for 2 minutes or until smooth. Add hardener to the grout and mix according to the manufacturer's instructions.
18. Pour the grout into the slot using a small bead. Make sure that the grout flows under the sensor slowly, eliminating air pockets. Start at the end and pour towards the lead attachment. Repeat until the slot is completely full of grout, at least in 2 passes, (approximately 1/2" thick each).
19. Using a putty knife or a trowel lightly spread the grout smooth along the length of the slot. The resin should be slightly higher (1/16") than the tape as it will shrink while curing.
20. Remove the tape as soon as the final grout pour is complete.
21. Once the grout for the Weigh in Motion Peizo Sensors is cured, (approximately 35 minutes, depending on grout type and ambient temperature), use a belt sander to sand the top of the grout flush with the surface.
22. Allow the loop sealant and the grout for both sensor installations to fully cure (45-60 minutes) before opening to traffic.



EXPIRES JANUARY 26, 2007

# PERMANENT TRAFFIC RECORDER AND WEIGH-IN-MOTION DETAILS STANDARD PLAN J-20

**SHEET 2 OF 3 SHEETS**

APPROVED FOR PUBLICATION

**Harold J. Peterfeso 09-02-05**

STATE DESIGN ENGINEER

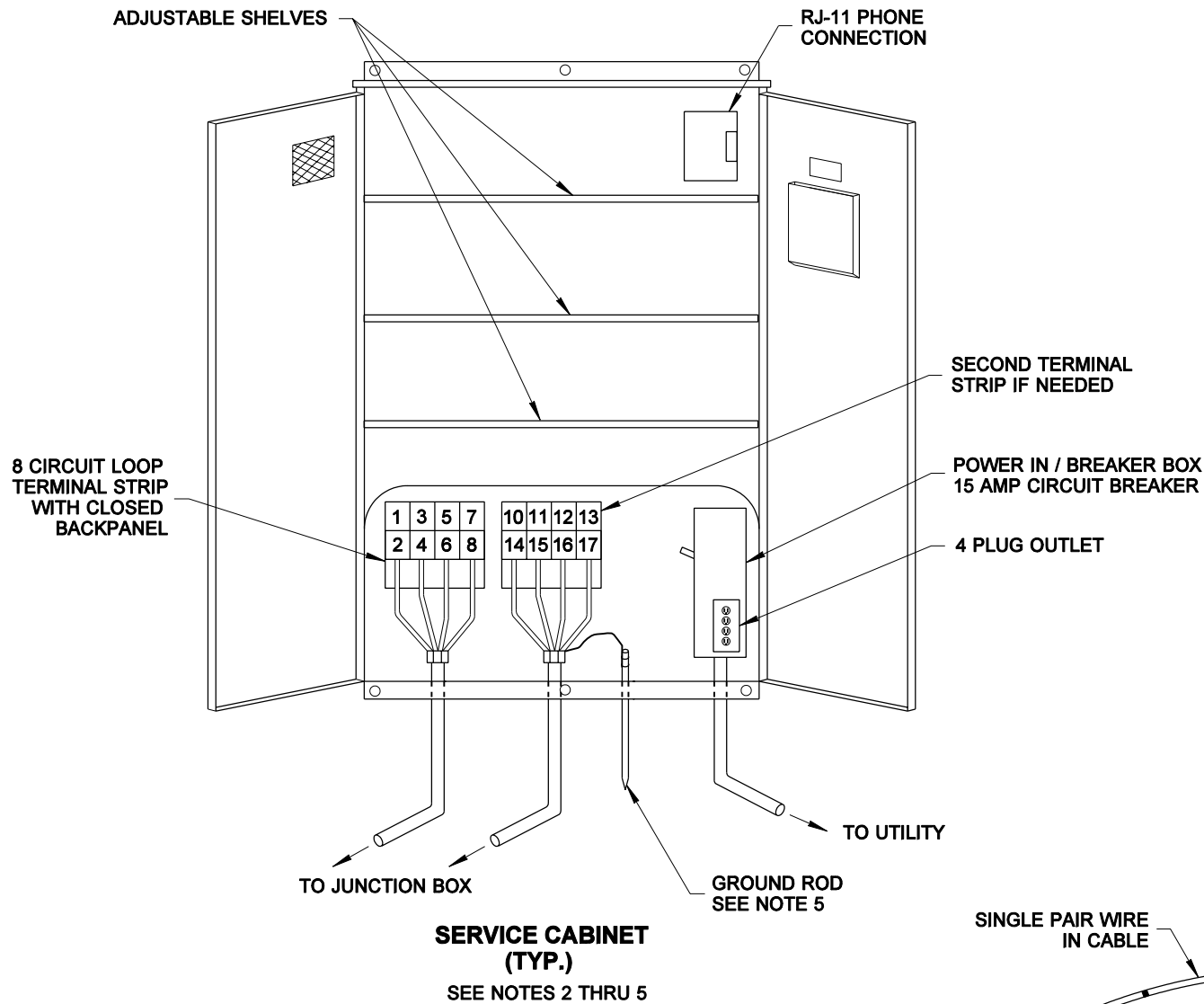
DATE \_\_\_\_\_



Washington State Department of Transportation

DRAWN BY: MONIQUE GLICK

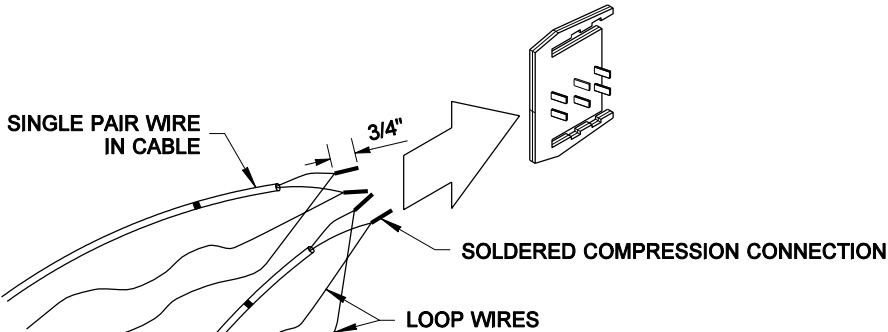
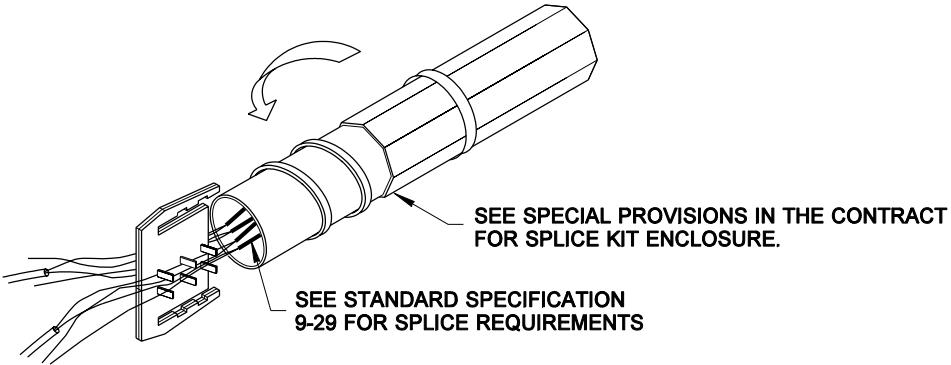
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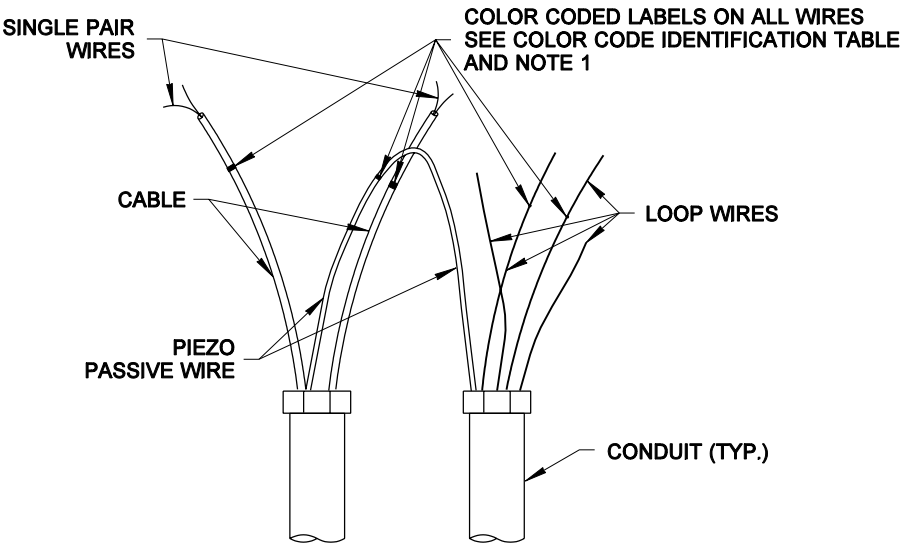
COLOR CODE IDENTIFICATION	
COLOR	CIRCUIT NO.
BLACK	0
BROWN	1
RED	2
ORANGE	3
YELLOW	4
GREEN	5
BLUE	6
VIOLET	7
GRAY	8
BROWN & BLACK	10
BROWN & BROWN	11
BROWN & RED	12
BROWN & ORANGE	13
BROWN & YELLOW	14
BROWN & GREEN	15
BROWN & BLUE	16
BROWN & VIOLET	17
WHITE IS FOR INCREASING MILEPOSTS	

NOTES

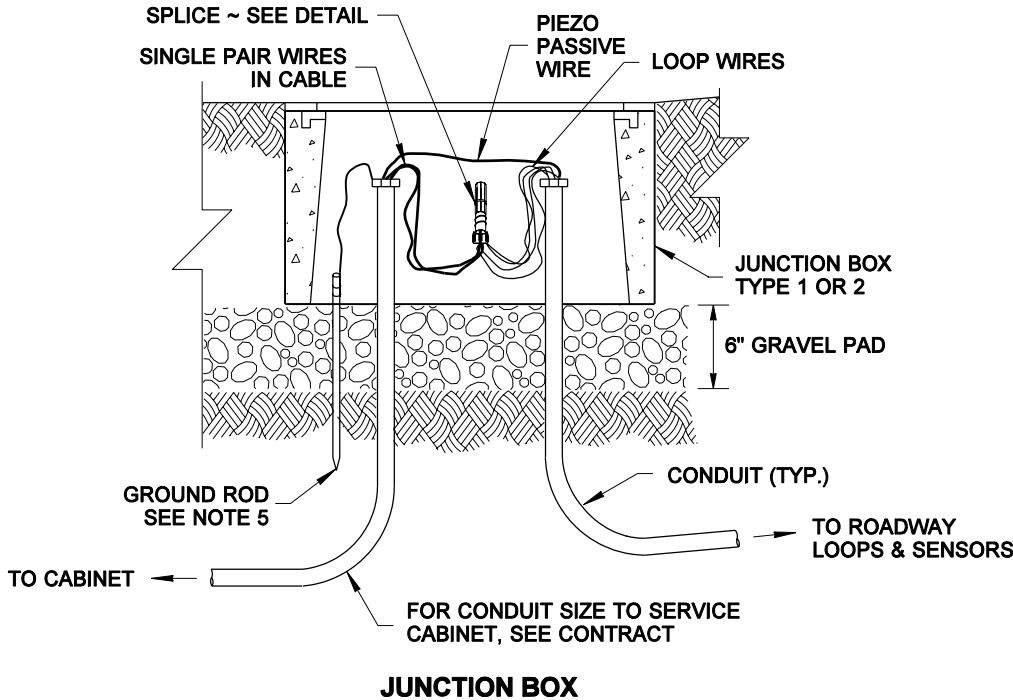
1. The Loop and Piezo leads in all Junction Boxes and Cabinets are to be color-coded. Use colored tape on each specific wire, see table. Wrap the tape on the wires approximately 6" beyond conduit in all Junction Boxes.
2. The maximum load in the Cabinet is 5 Amps.
3. The Cabinet may be pedestal or pad mount, see Standard Plan J-6c for details.
4. See Special Provisions in the contract for the Cabinet dimensions. See Standard Specification 9-29 for other requirements.
5. For Grounding Details, See Standard Plan J-9a. See Standard Specification 8-20 for other requirements.



SPLICE DETAIL



JUNCTION BOX WIRING (SHOWN PRIOR TO SPLICING)



EXPIRES JANUARY 26, 2007

PERMANENT TRAFFIC RECORDER AND WEIGH-IN-MOTION DETAILS  
STANDARD PLAN J-20

SHEET 3 OF 3 SHEETS

APPROVED FOR PUBLICATION

Harold J. Peterfeso

09-02-05

STATE DESIGN ENGINEER

DATE



Washington State Department of Transportation